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TRADE AND DEVELOPMENT BOARD
Committee on Commodities
Intergovernmental Group of Experts
on Iron Ore
Fourth session
Geneva, 22 October 1990
Item 2 of the provisional agenda

ADOPTION OF THE AGENDA AND ORGANIZATION OF WORK

Provisional agenda, annotations to the provisional agenda and suggestions for the organization of work

Note by the UNCTAD secretariat

I. PROVISIONAL AGENDA

1. Election of officers
2. Adoption of the agenda and organization of work
3. Review of iron ore statistics
4. Review of the current situation and outlook for iron ore
5. Bibliography of relevant studies on iron ore
6. Preparations for the fifth session of the Intergovernmental Group of Experts on Iron Ore
7. Other business
8. Adoption of the report of the Intergovernmental Group of Experts on Iron Ore to the Committee on Commodities.

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II. ANNOTATIONS TO THE PROVISIONAL AGENDA

Item 1: Election of officers

In accordance with normal practice, the Intergovernmental Group of Experts on Iron Ore may wish to elect a Chairman and a Vice-Chairman-cum-Rapporteur. It may be noted that the third session of the Intergovernmental Group of Experts on Iron Ore was chaired by a representative of an iron ore producing country; the Vice-Chairman-cum-Rapporteur at that session was a representative of an iron ore consuming country.

Item 2: Adoption of the agenda

At its third session, the Intergovernmental Group agreed on three substantive items for inclusion in the provisional agenda for the next intergovernmental meeting of experts on iron ore (TD/B/C.1/306 - TD/B/IPC/IRON ORE/AC.1/16, para. 16). These items appear as items 3, 4 and 5 of the provisional agenda in section I above. Suggestions for the organization of work are made in section III below.

Item 3: Review of iron ore statistics

To facilitate the annual review of world iron ore statistics, the Intergovernmental Group will have before it a document entitled "Iron ore statistics 1980-1989" (TD/B/C.1/IRON ORE/3). This publication was prepared mainly on the basis of replies received from Governments to the secretariat's annual questionnaire on iron ore sent to all States members of UNCTAD in January 1990.

Item 4: Review of the current situation and outlook for iron ore

To assist the Intergovernmental Group in examining the trends and developments with regard to production, consumption and trade, and other key factors influencing the iron ore market, the secretariat has prepared a review of the current situation and outlook for iron ore (TD/B/C.1/IRON ORE/2). With a view to stimulating an effective discussion under this item, experts will be invited to describe national or regional developments pertinent to prospects for the iron ore market.

Item 5: Bibliography of relevant studies on iron ore

For its consideration of this item, the Intergovernmental Group will have before it TD/B/C.1/IRON ORE/4, which is a supplement to the annotated bibiography on iron ore prepared by the UNCTAD secretariat and submitted to the third session of the Intergovernmental Group. Part I of the document contains an annotated bibliography of relevant studies prepared by international organizations and other relevant institutions or bodies in 1989/90. Part II lists studies and publications on iron ore communicated by Governments. Part III contains brief summaries of the studies which focus on iron ore mining capacity and investments, as well as on aspects relating to the evolution of demand for and supply of iron ore.

Item 6: Preparations for the fifth session of the Intergovernmental Group of Experts on Iron Ore

In view of the mandate given to the Intergovernmental Group by the Trade and Development Board in its decision 382 (XXXVI) and of the wish expressed by the Group of Experts at its third session that the bibliography should be maintained as a regular item on the agenda, it is proposed that items 3, 4 and 5 of the provisional agenda in section I above should constitute the substantive items of the provisional agenda for the fifth session of the Intergovernmental Group. Since the mandate of the Group provides for the participation of industry advisers, in its consideration of this item the Group may wish to request industry advisers to provide their suggestions on the future work of the Group. The Group may also wish to make a recommendation to the Trade and Development Board concerning the timing in 1991 of the fifth session.

III. ORGANIZATION OF WORK AND PROPOSED SCHEDULE OF MEETINGS

22 October 1990

10.00 hrs. Plenary meeting
After the election of officers and adoption of the agenda, the Group may wish to establish an informal working group to proceed with the discussions on agenda items 3, 4, 5 and 6 in a more informal setting. It is proposed that the the proceedings of the informal working group would be summarized by the Chairman at the closing plenary meeting.

15.00 hrs. Item 3 - Review of iron ore statistics
For the purposes of the working group's review of iron ore statistics, delegations will be expected to revise the statistics by providing their most recent national statistics. The secretariat will endeavour to ensure that a revised version of the document, incorporating revisions and new data, will be available by the end of the session. The secretariat will also report to the Group on progress in the implementation of the system of national statistical correspondents for the regular transmission of iron ore statistics to the UNCTAD secretariat. In this regard, with a view to completing the system, Governments which have not yet designated statistical correspondents, or which wish to make changes or corrections, may wish to take the opportunity to do so.

23 October 1990

10.00 hrs. and 15.00 hrs. Item 4 - Review of the current market situation and outlook for iron ore
Following the presentation of the secretariat document "Review of the current situation and outlook for iron ore" (TD/B/C.1/IRON ORE/2), arrangements have been made for a presentation on "Future trends in iron ore demand" by Mr. D.F. Anderson, Director of Economic Affairs of the International Iron & Steel Institute (IISI). It is envisaged that these presentations and ensuing discussions would be followed by presentations by individual Governments on supply and demand prospects at national levels and comments by industry advisers covering the global and national market situations and the specific factors which will influence future trends and developments in the iron ore market.

24 October 1990

10.00 hrs. Item 5 - Bibliography of relevant studies on iron ore

The document "Annotated bibliography on iron ore - 1990" (TD/B/C.1/IRON ORE/4) will be introduced by the secretariat. Representatives from international organizations concerned could be invited to provide additional information on their studies.

Item 6 - Preparations for the fifth session of the Intergovernmental Group of Experts on Iron Ore

17.00 hrs. Items 3, 4, 5 and 6

Summary by the Chairman of the proceedings of the informal working group.

Item 7 - Other business

Item 8 - Adoption of the report of the Intergovernmental Group of Experts on Iron Ore to the Committee on Commodities

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TD/B/C.1/IRON ORE/2
20 July 1990

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TRADE AND DEVELOPMENT BOARD
Committee on Commodities
Intergovernmental Group of Experts on Iron Ore
Fourth Session
Geneva, 22 October 1990
Item 4 of the provisional agenda

REVIEW OF THE CURRENT SITUATION AND OUTLOOK FOR IRON ORE - 1990

Report by the UNCTAD secretariat

This report describes developments in the world iron ore market in 1989 and in the first half of 1990. Against the background of the salient features of the 1980s, recent developments are reviewed in a longer-term context. The main purpose of this report is to stimulate an exchange of views on the current situation and outlook for the international iron ore market. Detailed statistics appear in document "Iron Ore Statistics 1980-1989" (TD/B/C.1/IRON ORE/3) prepared by the UNCTAD secretariat.

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II. Iron ore mining projects: closures and capacity reductions

reached a high of 58 million tons of iron ore in 1980 and a low of 46 million tons in 1989; (ii) there is a desire in the region to settle trade in convertible currencies; and (iii) the prospects for steel production in the region, which despite uncertainties, point to a decline in the short-term but a recovery in the medium-term. There, arise major questions concerning the prospects for growing imports from countries outside the region, and regarding the possible penetration of Soviet iron ore into other major importing markets.

5. The short-term outlook for iron ore remains favourable. No significant changes are anticipated in the level of demand for iron ore fines and lumps. The market for pellets, however, which eased in the first half of 1990 due to increased output may well become tighter again in the second half of the year, in view of the suspension of production in, and shipments from Liberia, and the temporary stoppage in one of the Brazilian plants for technical reasons. For 1991 iron ore prices could rise further if market conditions continue to strengthen the sellers in a world steel market which is expected to remain steady overall despite a slackening of crude steel production in some regions during 1990.

II. FEATURES INFLUENCING IRON ORE DEMAND

6. Following the buoyant level of world steel consumption in 1989, world apparent consumption of iron ore reached a new record of 976 million tons, 3 per cent higher than the previous record set a year earlier (table 1). In effect, the steady level of iron ore demand over the past three years has helped counterbalance the effect of the depressed 1982-1986 period, changing significantly the picture of the market at the end of the decade; it has contributed to improving the average annual growth of global iron ore demand which stood at 0.6 per cent a year in the 1980s. Consumption by types of product[1/] seems virtually unchanged since the tight market in 1988/89 pushed up the level of demand for all types of marketable ores: fines and concentrates continue to account for about 60 per cent of total demand; lump ores represent 20 to 25 per cent; and 15 to 20 per cent is the range for pellet-feed and all kinds of pellets. The evolution of iron ore demand over the past 10 years is shown in table 1.

7. During the 1980s there had been shifts in the consumption shares of the major groups of countries. Despite the recent recovery of iron ore consumption in developed market-economy countries, a declining trend may be clearly seen from the level of 456 million tons in 1980 to 403 million tons in 1989, with decreases of 13 and 25 million tons in the EEC and United States, respectively. This decline contrasts with the upward trend of iron ore demand in developing countries where the consumption share had increased from 9 per cent in 1980 to 14 per cent in 1989, and, in China, from 13 to 18 per cent. It should be noted, however, that while this upward tendency was uninterrupted in the Asian region, there were successive declines in Africa then, recently, stagnation in Latin America. This reflects the current depressed level of economic activity in these regions. The pattern of iron ore consumption in Eastern European countries was relatively stable; their share of world consumption ranged between 25 to 28 per cent during the past decade.

Table 1

Apparent consumption of iron ore
(million tons)

	1980	1983	1987	1988	1989
World	930.4	779.6	925.1	947.0	975.9
Developed countries	456.3	307.0	365.6	381.0	403.3
of which:					
EEC	161.8	122.5	131.9	140.5	148.9
Japan	134.2	109.4	112.3	123.7	127.9
United States	97.5	48.3	59.4	72.3	72.0
Developing countries	83.6	89.0	130.2	129.1	137.9
of which:					
Latin America	36.4	37.6	56.4	60.3	59.6
Asia	34.4	40.0	58.3	55.5	62.9
Africa	6.7	4.7	8.4	6.3	8.6
Countries of Eastern Europe	261.6	260.8	264.6	260.5	252.5
of which:					
USSR	197.8	202.2	205.5	204.9	201.1
Socialist countries of Asia	128.9	122.8	164.7	176.4	181.8
of which:					
China	120.4	114.7	156.2	156.2	172.6

Source: UNCTAD secretariat - "Iron Ore Statistics 1980-1989".

A. Steel Production

8. In 1989, world crude steel production reached a new record of 784 million tons, 0.8 per cent higher than in 1988. This increase was entirely due to (i) the sustained recovery of the steel industry in developed market-economy countries which started in 1987, and (ii) the further expansion of steel output in developing countries which rose by more than 3.5 per cent in 1989, accounting for 15 per cent of world total crude steel output (Chart 1). The average annual growth of world crude steel production during the 1980s was 1 per cent.

9. Total steel output in developed market-economy countries was 381 million tons, about 2.8 million tons higher than in the previous year, representing 49 per cent of the world total. As economic activity remained strong in these countries throughout 1989, with GDP in the OECD area growing at 3.6 per cent,[2/] crude steel production continued to grow, although at a slower pace: less than 1 per cent in 1989 compared to 8 per cent in 1988. Weakening steel demand in North America was more than offset by stronger demand in Japan, the EEC and other OECD countries, with the result that total steel demand in the OECD area was 2 per cent higher in 1989.

10. In the EEC, steel output remained at a high level in 1989, reaching 138 million tons, reflecting the dynamic economic situation in the area which favoured investments in the transport (automotive, railway and shipbuilding) and construction sectors. In Japan, crude steel production increased to about 108 million tons in response to the expansion of domestic consumption and private capital investment. This contrasted with the situation in the United States where crude steel production had declined to 88 million tons as consumers spending was affected by the high level of interest rates.

11. Total crude steel production in developing countries reached an all-time high of 116 million tons. The strongest increase was in Asia where output surpassed 62 million tons owing to the remarkable growth in the Republic of Korea. In China (as shown in table 2) crude steel output had also increased considerably. In Latin America, after years of steady growth, steel output stagnated in 1989, at 42.5 million tons. According to the Latin American Iron & Steel Institute (ILAFA)[3/] not only was there virtually no growth in either production or exports, but the region's steel consumption fell for the second consecutive year by nearly 3 per cent due to the weak level of general economic activity, as GDP grew by only 1 per cent and per capita GDP fell by 1 per cent. In Africa, the level of steel consumption is still very low; production increased in the 1980s, reaching the level of 6.4 million tons in 1989.

12. In Eastern Europe, crude steel production decreased by about 2 per cent to 219 million tons, reflecting the sharp decline of economic growth and industrial output which dropped from 3.8 per cent in 1988 to about 1.3 per cent in 1989. The USSR remained the world's largest steel producing country, accounting for 20 per cent of global output, despite its lower level of output in 1989. Partly due to the economic changes resulting from the transition from centrally planned to market economies, most countries of the region experienced a fall in the level of crude steel production, except Bulgaria, Romania and the Czech and Slovak Federal Republic.

Table 2

Output of major steel producing countries
(million tons)

Country	1980	1983	1986	1988	1989	1989/88 Change %
1. USSR	147.9	152.5	160.5	163.0	160.0	- 1.8
2. Japan	111.4	97.2	98.3	105.7	107.9	+ 2.2
3. United States	101.5	76.8	74.0	90.6	88.4	- 2.2
4. China	37.0	39.0	52.2	59.4	61.4	+ 3.4
5. Germany, Fed. Rep. of	43.8	35.7	37.1	41.0	41.1	+ 0.2
6. Italy	26.5	21.8	23.0	23.7	25.0	+ 1.3
7. Brazil	15.2	14.7	21.2	24.6	25.0	+ 1.6
8. Rep. of Korea	8.6	11.9	14.5	19.1	21.9	+14.6
9. France	21.2	17.6	17.7	18.6	18.6	0
10. United Kingdom	11.3	15.0	14.8	19.1	18.2	- 0.8

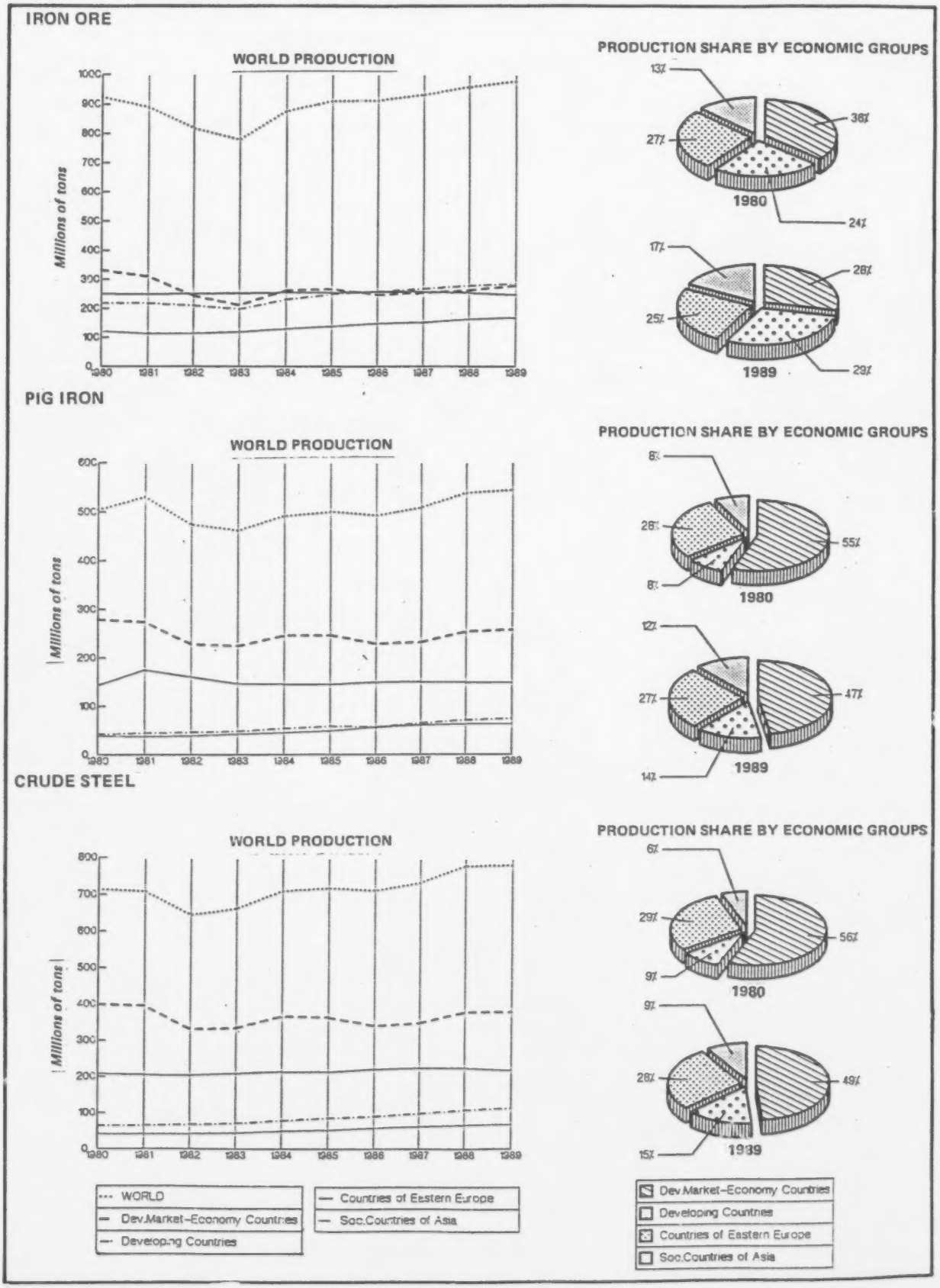
Source: UNCTAD secretariat - "Iron Ore Statistics, 1980-1989".

B. Pig Iron Production

13. World pig iron production in 1989 was a record 544 million tons, 1.3 per cent higher than in 1988; this growth was faster than that of crude steel production. Demand for pig iron remained strong due to its price and quality competitiveness. In the 1980's sharp increases in output were recorded in China, up from 35 million tons in 1980 to 57 million tons in 1989. Output also increased in some developing countries mainly in Brazil where pig iron output almost doubled from 13 to 24 million tons and in the Republic of Korea where it tripled from 5 to almost 15 million tons during the last decade. Developed market-economy countries lost almost 10 per cent of the share of world production as shown in Chart 1, mainly due to lower output in the United States and Japan.

Chart 1

WORLD PRODUCTION OF IRON ORE, PIG IRON AND CRUDE STEEL



Source: UNCTAD secretariat

14. The volume of pig iron traded in the international market over the last decade fluctuated between 7.8 million tons its lowest level in 1981, to an estimated 11.5 million tons in 1989. Since the bulk of production is for domestic consumption, trade of pig iron has accounted for only 2 per cent of world output. However, trade is expected to expand in response to the growing competitiveness of primary iron vis-a-vis scrap. In this context, it should be noted that in Japan,[4/] for instance, the share of pig iron in overall imports of pig iron and ferrous scrap had increased during the period 1987 to 1989 from 38 per cent to 67 per cent (table 3).

Table 3

Imports of pig iron and ferrous scrap by Japan, 1987-1989
(thousand tons)

Pig Iron				Ferrous Scrap			
Origin	Years 1987	1988	1989	Origin	Years 1987	1988	1989
China	268	1,301	474	USA	429	754	313
USSR	371	552	706	USSR	426	219	213
Brazil	71	429	745	Australia	301	209	135
South Africa	314	288	150	Netherlands	59	110	-
Australia	188	163	77	Hong Kong	94	67	9
Korea PDR	66	30	34	China	12	62	24
				Vietnam	-	-	248
Total (including others)	1,443	2,917	2,288	Total (including others)	2,358	1,791	1,157

Source: UNCTAD secretariat - "Iron Ore Statistics 1980-1989".

15. Pig iron trade is dominated by the USSR, which is responsible for about 60 per cent of total exports mainly to Poland, Japan and Czechoslovakia. Brazilian pig iron exports exceeded 2.5 million tons in 1988/89. The bulk of exports was shipped to Japan, the United States and China. The latter country had become a net exporter since 1987 although its exports in 1989 were reduced to alleviate a domestic shortage.

C. Sponge Iron or Direct Reduced Iron (DRI)

16. To meet the growing demand, world production of sponge iron reached 15.5 million tons in 1989, more than 12 per cent higher than in 1988. However, total DRI installed capacity is still 9 million tons higher than current output, as shown in table 4. The average growth of DRI production was 2.5 per cent in the 1980s. The resurgence of interest for sponge iron over the past few years and its potential for further expansion can be explained by: (i) the growing use of DRI in foundries as well as in electric arc furnaces, which in 1989[5/] accounted for 26.4 per cent of world crude steelmaking; (ii) the chemical purity of DRI quality as compared with residual contamination of ferrous scrap; (iii) greater price stability of DRI in contrast with volatile, and recently high, ferrous scrap prices; and (iv) improved DRI technology which promotes its worldwide availability, assuring supply of merchant DRI for trade in the world market.

Table 4

DRI capacity and production situation

Analysis	Million tons		Capacity utilization (percentage)	
	1988	1989	1988	1989
Production	13.80	15.53	58	64
Plant not operating	3.75	2.91	15	12
Plants in start-up	1.88	0.93	8	4
Technical/opertional problems	4.96	5.74	19	20
Total installed capacity	24.39	25.11	100	100

Source: Based on information from Midrex Corporation. For world sponge iron production figures, see "UNCTAD secretariat - "Iron Ore Statistics 1980-1989".

17. Venezuela has consolidated its position as the largest sponge iron producer over the past few years. In early 1990, with the reactivation of the idle Minorca plant, this country - which combines availability of iron ore, natural gas and relatively cheap hydro-electricity - has at present the world's largest DRI capacity: 4.5 million tons. Installed capacity of DRI in Mexico now exceeds 3 million tons, or 1 million tons more than in 1986. The USSR, the third major producer, is considering the construction of a new DRI plant to expand exports. Malaysia is also planning a new DRI plant scheduled to start operations in 1992/93 and aimed at reducing the country's dependence on imports of scrap. For the same reason, several DRI ventures are being examined and further expansion of DRI capacity is under way in India. The envisaged construction of the Sidersul's DRI plant in Argentina, combining Brazilian's iron ore, Argentinean's natural gas, and Mexican technology, has been postponed.

18. The volume of sponge iron traded in the international market had increased slightly to about 1.5 million tons in 1989. DRI imports into the United States, the major scrap exporting country, have been increasing recently. Higher consumption of sponge iron has become also more apparent in developing countries with chronic scrap deficits.

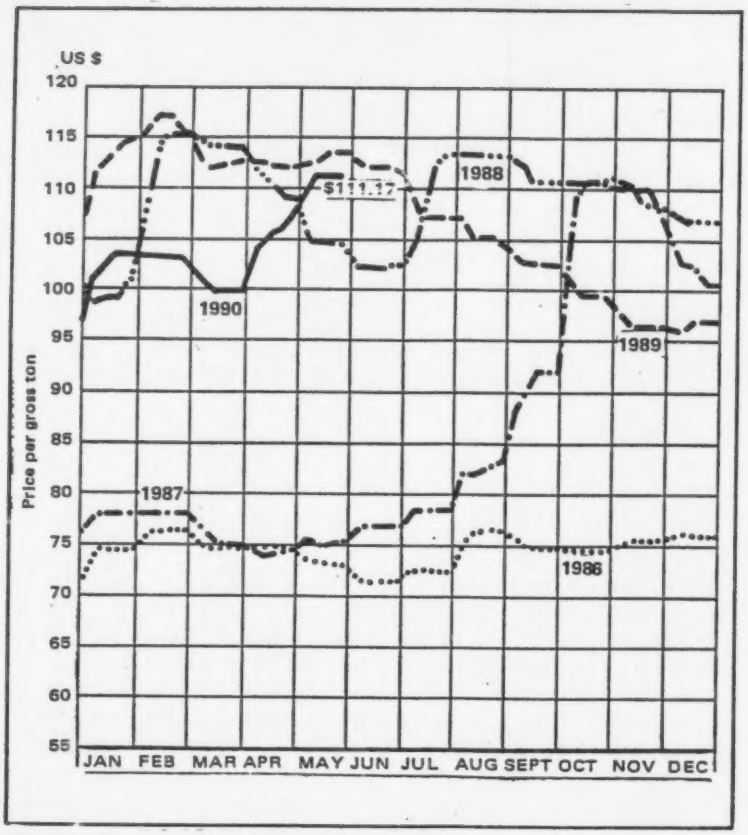
D. Ferrous Scrap

19. The year 1989 was a good one for ferrous scrap, the only substitute for primary iron in steelmaking. Mills had a great need of iron units which pushed up the level of scrap demand, particularly during the first part of the year. Scrap prices remained at high levels until June of 1989, then weakened in the second half of the year, but increased again during the first six months of 1990 (Chart 2).

Chart 2

EVOLUTION OF SCRAP PRICES

Metal Market Weekly Steel Scrap Price Composite



Source : American Metal Market, May 1990

20. Regarding the future of scrap, the following developments should be noted: (i) the increasing amount of residual content in most commonly recycled grades, partly owing to new components used by the auto industry, etc.; (ii) the significant reduction in the quantities of scrap originating in the steel industry, caused by the widespread use of continuous casting which increased from 30 per cent of world steel production in 1980 to about 62 per cent in 1989;[6/] (iii) the new regulations regarding waste and environmental pollution, which in the near future will have a bearing on the recycling of steel coated with other materials. These issues, are bringing new challenges and growing concerns to scrap collectors, traders and users, on how to assure availability and a high quality of ferrous scrap, simultaneously.

21. The world ferrous scrap trade increased in 1989. The United States exports reached their highest-ever level with 12 million tons in 1989, remaining the largest exporting country. The EEC has gradually become a net ferrous scrap exporter, since total exports from the Federal Republic of Germany, the United Kingdom, France and the Netherlands together now exceed the combined imports of Italy, Spain and Belgium. Japan, a major scrap generator, reduced imports in 1989 as shown in table 2, partly due to weakness of the yen against the dollar which made imported scrap less attractive. In China, an expansion of scrap processing machinery is envisaged to meet the growing demand of the local steel industry. The USSR is also modernizing its scrap recycling sector and joint-ventures with foreign companies with expertise in this field are being set-up to improve the Soviet system of scrap collection, processing and marketing, not only to meet domestic demand but also to open up new channels for exports.

22. Also noteworthy are the growing imports of scrap by developing countries. The major buyers of United States ferrous scrap from 1987 to 1989 have been the Republic of Korea, Turkey, India and Mexico. In addition, inter-trade among developing countries of Asia, particularly with suppliers from Hong Kong, Singapore and Sri Lanka, is increasing every year. The situation is different in Latin America, because scrap imports which account for about 10 per cent of consumption, are expected to fall gradually, given the potential for pig iron and DRI production in the region.

E. Iron Ore Stocks

23. In view of the tightness of the market, the level of iron ore stocks held by producers was extremely low at the end of 1989. With very few exceptions, mines worldwide were running close to capacity with shipments expedited to meet the strong demand. This situation applied to all types of non-agglomerated ores as well as to pellets,[7/] and had a impact on price negotiations for 1990.

24. In contrast, the level of iron ore inventories in most consuming countries was higher than usual. For instance, in Japan, iron ore stocks in 1989 were 2 millions tons higher (19.2 million tons) than the previous year because steelmills had increased their working stocks of iron ore in line with the accelerated pace of steel production and also in order to avoid temporary shortages of certain types of ore. In addition, as a considerable price increase was expected for deliveries in 1990, it seemed advantageous for iron ore consumers to increase stockpiles and secure part of their needs at 1989 prices.

III. FEATURES INFLUENCING IRON ORE SUPPLY

25. After years of imbalances followed by the necessary adjustments, the year of 1989 re-established supply/demand equilibrium in the iron ore market. In general, the iron ore industry was able to respond to the sharp upturn of demand. Worldwide, efficient iron ore mines ran close to their limits of effective capacity. World iron ore output rose to 976.5 million tons, 2 per cent higher than the already good level of 1988. This level of production was not only the highest in the 1980s but also an all-time record level in the history of the iron ore industry, surpassing the previous boom years of 1974 and 1979. Accordingly, in terms of Fe content, world output also reached a peak of about 560 million tons, demonstrating the ability of the iron ore mining industry to meet the ever-increasing qualitative demand pattern, which in addition to higher levels of output also requires higher grade ores with low contents of impurities. Actually, the average iron content of global iron ore output, which was 55.7 per cent in the early 1980s had increased to 57.3 per cent by the end of the decade.

26. As shown in Chart 1, during the 1980s an expansion of iron ore production in developing countries became evident as their production share increased from 24 to 29 per cent. Equally remarkable was the growing level of output in China, despite the quality handicap of its low-grade ore. In contrast, while the annual production of iron ore in Eastern European countries has remained relatively stable over the past 10 years, developed market-economy countries now have a lower degree of participation in world production, in spite of their improved performance during the last two years.

27. In 1989, the position of the top major producing countries was maintained. As indicated in table 5 below, the USSR remains the largest producer, followed by China, Brazil and Australia respectively; these four countries continued to account in 1989 for almost 7 per cent of global iron ore production. It is a clear indication that despite the fact that iron ore is one of the most abundant and wide-spread minerals on the earth, the bulk of economically extractable output is concentrated in few countries. Apart from Eastern Europe, iron ore output increased in all regions. Table 5 gives an indication of the evolution of iron ore output in major producing countries during the 1980s.

Table 5

Major iron ore producting countries, 1980-1989
(million tons, natural weight)

Country	1980	1983	1986	1988	1989	1989/88 Change %
1. USSR	244.7	245.0	250.0	248.0	241.0	- 2.8
2. China	113.1	110.3	140.6	154.8	160.0	+ 3.4
3. Brazil	97.2	92.1	129.0	146.0	153.7	+ 5.3
4. Australia	95.5	71.5	94.0	96.1	105.8	+10.1
5. United States	77.8	38.5	39.5	57.5	57.9	+ 0.7
6. India	40.0	37.6	48.8	50.4	50.0	- 0.8
7. Canada	48.7	33.3	36.7	40.4	40.4	0
8. South Africa	26.3	16.6	24.5	25.2	29.9	+18.7
9. Sweden	28.5	13.5	20.4	20.5	21.8	+ 6.3
10. Venezuela	16.1	9.5	16.2	18.5	18.0	- 2.7
11. Liberia	18.2	15.4	15.6	12.8	13.4	+ 4.7
12. Mauritania	8.9	6.6	9.3	9.8	12.1	+23.5

Source: UNCTAD Secretariat - "Iron Ore Statistics 1980-1989".

A. World market of agglomerated ores

28. Total production and subsequent consumption of both pellets and sinter continued to increase in 1989. However, while output of pellets rose by 2 per cent, that of sinter had a growth rate of only 0.4 per cent.

Sinter

29. World sinter production totalled 568 million tons in 1989,[8/] an increase of 2.5 million tons over the previous year but lower than the volume of 584 million tons produced in 1979 during the previous steel boom. This declining trend seems to reflect the reduction of sinter capacity and the growing environmental pressure controls on sinter plants, particularly in Europe where

older plants are located. Furthermore, while technological advances help to reduce sintering costs in modern plants, increasing its costs-efficiency, in times of accelerated steel production, it is easier for steelmakers to increase the consumption of direct charges such as pellets and lumps, rather than respond quickly with a higher level of sinter output. This partially explains why sinter production is proportionally higher during weaker steel production periods.

30. As almost all sinter plants are part of integrated steelworks, virtually the totality of sinter production is for domestic consumption. The USSR, EEC, Japan and China are, therefore, the major producers. Worldwide, there are exceptional cases of sinter produced for exports, for instance the Philippines. The process of modernization of sintering capacity in Eastern Europe, particularly in the USSR, is under way.

Pellets

31. The growth of the world market for pellets continued throughout 1989. World pellet output reached an all-time high of 235 million tons, or 2 per cent above the level of 1988.[9/] Demand had been very strong since the end of 1987, although signs of a softening in pellets consumption could be seen during the first half of 1990, giving an indication that the peak of this cycle had probably been reached in 1989. The lower price differential between pellets and fines for delivery in 1990 seems to be further evidence that demand for this product is levelling off.

32. Pellet producers, who in the dark years of slow demand had invested substantially to improve quality and minimize costs, were in a good position to respond promptly to the brisk demand, with plants operating at full capacity and even in some cases going beyond. Two main features favoured this positive development: firstly, the sudden upturn of surprising magnitude of steel production, which boosted the level of pellets used in blast-furnaces, particularly in the United States and the EEC. Secondly, the growth (+ 13% in 1989) of world DRI production which pushed up the demand for DRI pellets. However, now it is becoming clear that since blast-furnace steelmaking has remained at high levels for a prolonged period, a number of integrated steel mills are expanding their sinter production capacity, hence reducing their intake of pellets. On the other hand, as DRI production continues to expand, demand for DRI pellets has the potential for further increases.

33. Furthermore, in view of the firm demand and strong prices during the last two years, many pellet producers were tempted to expand their pelletizing capacities. Some expansion of capacity occurred, for instance, in the United States and Sweden, but others faced some difficulties, as in Peru which, on account of cuts in energy supply, could not reach its target of 3.2 million tons and produced only 1.8 million tons in 1989. In Venezuela, Ferrominera might start in 1990 the construction of a new plant for an additional capacity of 3.3 million tons to meet its growing domestic demand for DRI production. The development of new plants in Brazil and Mauritania are still being evaluated. In the USSR, measures to modernize and upgrade pellet quality are being implemented.

34. As shown in table 6 below, international trade of pellets was high during the 1988-89 period. Exports of pellets declined to 76 million tons in 1989, acounting for 32 per cent of total output. The position of the five major exporting countries namely Brazil, Canada, USSR, Sweden and the USA had remained unchanged. If the level of crude steel production remains strong, even if new blast-furnaces capacities are not foreseen, a potential exists for further expansion of the trade in pellets to meet the increasing demand for DRI output.

Table 6

World pellets exports, 1986-1989
(million tons)

Country	Volume			
	1986	1987	1988	1989
Brazil	22.2	20.0	23.4	23.3
Canada	17.5	13.1	17.6	17.3
USSR	10.9	10.8	10.9	10.7
Sweden	6.2	6.1	6.5	6.5
Chile	3.0	3.3	3.5	3.6
Liberia	3.2	3.2	3.2	3.3
USA	4.5	5.0	5.2	2.9
India	0.1	0.8	1.6	1.9
Australia	1.7	2.1	2.0	1.6
Peru	1.5	1.7	1.5	1.5
Venezuela	-	0.4	0.8	1.2
Norway	-	-	0.9	1.0
Hungary	-	-	-	0.8
Total	71.0	66.7	77.8	75.7

Source: UNCTAD secretariat - "Iron Ore Statistics 1980-1989".

B. Regional Developments

35. Major developments in iron ore production and supply capacity which took place in 1989 and the first half of 1990 are reviewed below by geographical areas.

Africa

36. Iron ore production by developing countries of Africa increased marginally in 1989, despite the exceptionally favourable world market conditions. During the 1980s iron ore output in the region declined continuously and in 1989 stood at 32.5 million tons compared to 34 million in 1980. The relative position of African countries as world suppliers had deteriorated, since they (except South Africa) were producing about 3.7 per cent of world output in 1980 against 3.3 per cent in 1989. The situation is worse in terms of their share in world trade, which declined from 7.2 to 6 per cent over the past decade.

37. Liberia was the hardest hit by a decline in output: almost 40 per cent from the peak of 20.7 million tons in 1981 to about 13 million tons in 1989. As stated in last year's report, the Lamco Joint-Venture ceased its mining operations and shipped the remaining stockpiled ore in the course of 1989 when the Lamco concession agreement was terminated. For the immediate resumption of the mining operations, a new joint-venture has been created between Liberia's state-owned mining company - Liminco, and the African Mining Consortium Ltd AMCL. Under this agreement a new subsidiary, Ninco Iron Ore Sales Ltd., has been established to commercialize the remaining output of the Yekepa deposits which are planned to be mined at an annual rate of 3 million tons, until the commencement of shipments from the Mifergui Project, scheduled to start in 1993, which also will be traded by NINCO through long-term contracts. In the meantime, the Liberian situation was further aggravated in 1990 as political turbulences, which started in December 1989, affected production and shipments during the first half of 1990. As a result, the target of 10 million tons set for 1990 seems unlikely to be reached, even if

the operations of the Bong Mining of around 7.3 million tons per year might not be so severely affected.

38. Mauritania's iron ore production increased from 9.8 million tons in 1988 to 12.1 million tons in 1989, a record level. Exports were also up from 10 to 11 million tons, and for 1990 the target is for 11.5 million tons. Despite the strong demand, and thus the potential for higher output, SNIM could not further expand its production rate; only one unity of the Guelbs producing 3 million tons is in operation, and the implementation of its second phase was postponed to a later stage. Mauritania's current plans are to develop the Mhaoudat Project, which gradually will replace the Kedia's deposit. A feasibility study for this project was concluded in 1989 confirming reserves of 80 million tons of high-grade ore (64% Fe); an investment of 160 million dollars will be required in order to produce 6 million tons a year of lumps and fines starting in 1993; financial requirements are expected to be met by Arab countries and loans extended by the World Bank. Regarding the pelletizing joint-venture project proposed by the Arab Industrial Development Organization (AIDO), a pre-feasibility study concluded in June 1990 confirmed the viability of the El Aoujj project in Nouadhibou, planned to produce 5 million tons of DRI pellets to meet regional requirements.

39. Iron ore has also been produced, mainly for domestic consumption, in Algeria in the order of 3.5 million tons over the decade, although in 1989 production declined to 2.7 million tons. In Egypt, iron ore output at present is about 2.5 million tons, and in Zimbabwe about 1.5 million tons. Marginal quantities are also produced in Tunisia and Morroco.

40. Among potential projects to be developed in Africa, after years of consideration, the moment apparently has come for effective development of the most qualified ones, namely, Mifergui in Guinea/Liberia and Miferso in Senegal. In 1989/1990, due to the tight supply situation, these projects gained impetus although not yet the financial support necessary to start, despite the growing interest of the EEC mills to diversify their sources of supply.

- The Mifergui Project has been recently re-assessed. It will benefit Guinea where the deposits are located, and Liberia which already has the infrastucture. Under discussion since 1983, this project has not yet got under way for political and economic reasons; it requires an investment estimated at 200-250 million dollars to produce initially 6 million tons of sinter feed a year by 1993, with provisions for further expansion to 9 million tons. NINCO Iron Ore Sales Ltd., created in 1989 with the participation of Governments and private investors, is responsible for the promotion of the project through long-term arrangements.

- The Miferso Project to exploit the Faleme deposits in Senegal is also being reviewed and promoted; it has a good chance of being implemented. Despite the attractiveness of this project due to its high-grade ores (62% Fe) and the great amount of lumps, the major constraint is the high infrastructure costs which will require an investment of 700 million dollars of the total of 900 million needed for the whole project. Nevertheless, as the infrastructure (railway and port) could be also used in the agricultural sector, it is hoped that some financial assistance will be forthcoming from intergovernmental financial institutions such as the World Bank, as part of a broad development project. With concrete backing from potential consumers and the required financial assistance, the project could start producing 6 to 7.5 million tons by 1995 with the possibility of reaching even 12 million tons at a later stage.

41. In South Africa iron ore production in 1989 had reached almost 30 million tons. This is remarkable since the level of iron ore output in the 1980s has been relatively stable in this country, ranging between 24 and 25 million tons, apart from the worldwide drop in 1983 and 1987. The recent higher level of output has been the result of an expanded rate of production at the Sishen mine, the principal deposit of the country. Exports, of course, followed the same positive development increasing to 14.5 million tons compared to 11 million tons the year before; while supplies to Japan have been decreasing, sales to Europe and the United States have increased. In 1989, ISCOR - South African Iron and Steel Industrial Corporation - the country's main iron ore and steel exporter, which had been a state-owned enterprise since 1928, was privatized.

Asia

42. During the 1980s China continued to rank second among the world largest iron ore producers. Chinese output was estimated at 160 million tons in 1989 compared to 113 million in 1980. However, it should be recalled that this huge volume of output generates only about one-third of usable ore, due to its low-grade quality, around 35% Fe. In spite of continuous efforts to increase local iron ore output, China's dependence of imported ore has increased considerably over the past ten years, from about 7 million tons in 1980 to 12.6 million tons at present. Two alternatives have been put forward to remedy this situation:

(i) Investments in iron-ore projects overseas. This is the case of the Sino-Australian Channar Project, China's first large overseas project, which went into operation in 1990 to initially supply 3 million tons of iron ore; gradually, when it is in full operation by 1997 it will provide 10 million tons annually. In addition, China has been considering investing in: a mine in Malaysia and a pelletizing project in Peru. It had also expressed some interest in the Miferso Project in Senegal.

(ii) Overcoming the constraints for expanding domestic production. Despite the technical difficulties, due to the quality of the ore and the transportation problems, the Chinese Government had announced in early 1990 a decision to invest massively in local iron ore mining so as to reduce the growing reliance on imported ores, now becoming very costly.[10/] It is planned to build eight new mines and expand five old ones over the next five years, to satisfy the growing demand of the country's iron and steel industry. The target is to produce 70 million tons of crude steel by 1995. The new mines will be located near large steel mills in order to facilitate transportation. Joint ventures might be created to undertake the necessary studies and projects.

43. In India iron ore production in 1989 was estimated at 50 million tons, lower than the target of 58 million tons set by the Government's Seventh Five-year Plan for the end of the 1980s. Output and sales of the Kudremukh Project improved in 1989, but in early 1990 the country faced problems over not being able to load very large vessels for shipping Bailadila's ore to Japan. The National Mineral Development Corp. (NMDC) is planning to raise its output to about 25 million tons by 1995, to meet the growing domestic demand. In April 1990, the Indian Government created "Bharata Business International", a holding company to centralize India's existing import and export organs, including the Minerals and Metals Trading Corp. (MMTC) which had been responsible for iron ore trade.

44. Iron ore production for domestic consumption, in the Democratic Peoples Republic of Korea was about 8 million tons during the past ten years, but a new iron ore processing plant has recently been built at the Kamdok Mining Complex in order to increase output. In the Republic of Korea, Malaysia and Thailand, iron ore production is marginal. Early in 1990 a team of Japanese experts held preliminary talks with the Vietnamese Government to consider an investigation of the Thachkeh iron ore deposit in Vietnam.

Middle East

45. Iran is planning the modernization of its iron ore plants during the first half of the 1990s, in tandem with the envisaged expansion of the country's iron and steel production. In Syria, technological experiments are being carried out to look into the possibility of upgrading and beneficiating the Zabadania deposits which have high alumina contents. Bahrain's pellet plant is overcoming some technical difficulties to run at full capacity, and is presently supplying pellets to Iran, Iraq, Saudi Arabia and Qatar.

Eastern Europe

46. During the past decade, the USSR maintained its position as the largest iron-ore producing country. With more than 25 per cent of world total production, it is the main supplier for other Eastern European countries. Its lowest level of iron ore output over the decade was 241 million tons in 1989, a decline of 3.5 per cent compared to 1988. In view of the low-grade quality (25% - 31% Fe) of the Soviet run-of-mine ore, most of the ore is concentrated to reach 55% Fe. Efforts to upgrade the ore and to increase mines efficiency are proving effective; better quality of concentrates grading around 57% Fe were achieved in 1989. In addition, new equipped facilities for dressing oxidized and magnetite ores now make possible the production of high-grade concentrates containing up to 67% Fe. Recently, emphasis has been given to modernization and greater efficiency of existing operations rather than to expanding capacity. The most important projects which came on stream were the Kostomuksha in 1985, and the more recent Krivoj Rog complex, built in a joint effort with other Eastern European countries to supply 3 million tons of concentrates to the region.

47. In the Czech and Slovak Federal Republic, iron ore mined in the Slovak mountains and in the central area of the country has been showing a declining trend; it levelled off at 1.8 million tons from 1985 to 1989, which covers only 15 per cent of the country's total requirements. In Bulgaria over the past ten years, iron ore production fluctuated between the upper level of 2.2 million tons in 1986 and 1.5 million tons in 1982, but in 1989 Bulgarian iron ore output was 1.6 million tons, a decline of 12 per cent from the preceding year. This country seems inclined gradually to replace the use of the costly and very poor quality ore (about 33% Fe) mined locally with state subsidies, for imported good quality ores.

48. In Romania despite its growing demand, annual iron ore output ranged from 2.4 to 2.0 million tons during the 1980s due to the limited capacity and low grade quality (about 30% Fe) of its Hunedoara, Cluj and Resica reserves. At the beginning of the 1980s iron ore was marginally produced in Hungary, Poland and in the German Democratic Republic, but since 1986 iron ore has practically no longer been mined in these countries.

Other Europe

49. In the EEC region, iron ore output in 1989 was 14 million tons against 44 million tons in 1980. In addition to this almost 70 per cent fall, the downward trend in output will continue in the coming years,[11/] because it results from the closure of uneconomical mines, a process which is still not

finished. In France, which has remained the biggest producing country in the region, three additional mines were closed down in 1989; total output in the country was 9.3 million tons in 1989 compared to 29 million tons in 1980. In Spain seven mines remain in operation, but most of the output comes from the Marquesado Mine run by Cia. Andaluza de Minas (CAM). Spanish total production in 1989 was about 4.6 million tons, slightly higher than in 1988 despite the interuption of operations in December 1989 caused by a severe storm which damaged the loading berth at the port of Almeria. CAM restarted operations in April 1990 and plans to produce 2.7 million tons during the remaining seven months of 1990. The negligible quantity of iron ore produced in Belgium-Luxembourg and Italy had ceased completely in 1983/84, although very small quantities were still mined in the United Kingdom, the Federal Republic of Germany and Portugal, which together produced less than 150 thousand tons in 1989.

50. In 1989 total iron ore produced in EFTA's countries (European Free-Trade Association) rose slightly to 26.5 million tons, a level which is about 10 million tons lower than in 1980. Sweden remains the largest producer and supplier to the region as well as a major exporting country to world markets. Swedish output amounted to 21.8 million tons, of which 10 million tons of pellets. This occurred despite the closure of the Grangesberg Mine at the end of 1989. Mines ran at full capacity; LKAB mined 90 per cent of the country's total output from its Kiruna, Svappavaara and Malmberget operations; the company's target for 1990 is to produce 20.5 million tons. In Austria, 2.4 million tons was produced by Voest Alpine Erzberg which is the only iron-ore mining company in the country; in view of the low-grade ore (32% Fe), production costs are still very high despite the company's efforts to reduce operating costs. Norway's iron ore output has been declining and was 2.3 million tons in 1989, from which about 2 million tons was exported. In Finland iron ore ceased to be produced in 1988. Switzerland has never produced iron ore.

51. In Yugoslavia after the record production of 6.6 million tons of iron ore in 1986, output has been declining; it stood at 4.4 million in 1989. For 1990, Yugoslavia's target is 4.8 million tons, from which 3.8 million will be agglomerated in the form of sinter; strikes at the Zemia's mine during the first half of 1990 may affect the annual level of output. Turkey's iron ore production had also declined from the record of 5.4 million tons reached in 1988 to 4.1 million tons in 1989, mainly due to a three-month strike at Divrigi Mines. Nevertheless, in 1990 output might reach the planned 5.7 million tons to satisfy partly the needs of the Turkish steel works.

Latin America

52. In 1989, iron ore production in Latin America reached a new record of 193 million tons, owing to the ever-increasing level of output in Brazil which topped 154 million tons. Apart from the general decline of 1982-1983, during the 1980s iron-ore output in Latin America had increased continuously. At present it accounts for 20 per cent of world total production, compared to about 15 per cent in 1980. Throughout the decade Brazil strengthened its position as the world's third largest iron-ore producer and the leading exporting country. With an annual capacity estimated at 175 million tons, Brazil produced 153.7 million tons in 1989, in addition to 27 million tons of pellets. Total output of Cia Vale do Rio Doce (CVRD) and its associated companies exceeded 104 million tons, of which 67.2 million tons were exported. CVRD's South System comprises six mines located in Minas Gerais where current output is around 60 million tons with a target of 63.5 million tons for 1990, while CVRD's North system is the Carajas project which produced about 32 million tons in 1989 and is set to reach its full production capacity of 35 million tons this year.

53. Mineracoes Brasileiras Reunidas MBR Brazil's second largest producing company, also achieved a record output in 1989 of 20.2 million tons from its three mines in operation. Foreseeing a lower production rate in its Aguas Claras Mine in the next few years,(MBR) is planning the development of the Tamandua deposit, for which pre-feasibility studies were being carried out. Ferteco's iron ore output in 1989 also increased to 11 million tons, from which pellet-feed ores were used for the production of 3.5 million tons of pellets. Samitri's annual production had also increased, from 8.8 million tons in 1988 to almost 9 million tons in 1989. Samarco's output also rose to almost 8 million tons of concentrates and 5.4 million of pellets; this company, another major producer in Brazil, announced in early 1990 plans to invest $US 70 million to develop a new deposit in the Alegria area to replace its Gerrmano Mine where reserves will be depleted by 1993/94. This project will ensure mining for at least 15 years, and will allow the continuation of Samarco's current pelleting operations.

54. In Venezuela iron ore output in 1989 was 18 million tons, slightly lower than in 1988. The level of production in this country has fluctuated considerably over the past ten years from 16 million tons in 1980, to its lowest level of 9.5 million in 1983, but stabilized at 18 million tons over the past two years. The top-off station built to facilitate shipments, after being moved from the original site has been operating at capacity since mid-1989. CVG Ferrominera is planning to go ahead with the construction of a new 3 million ton capacity pellet plant to feed the Minorca, Sivenca and Sidor DRI plants; this construction, which is planned to start in the second half of 1990, will require an investment of US$ 250 million and would reach full capacity by 1993. The DRI Minorca plant is operating satisfactorily since its official re-activation in February 1990; Sivenca's new DRI plant, with additional capacity for 600 thousand hot briquettes may start operations in the second half of 1990, strengthening Venezuela's leading position as producer and world supplier of sponge iron.

55. In Chile, since 1986, Cia Minera del Pacifico (CMP) has been improving the level of iron-ore output. In 1989 it totalled 8.1 million tons, but was still lower than its 1980 level. Algorro and Romeral are the two major deposits operated by CMP, producing self-fluxing pellets, pellet chips, DR pellets, pellet-feed, fines and concentrates. The company is planning new investments to produce about 1 million tons a year of pellet-feed at the Romeral Mine, with a possibility of raising this capacity to 2 million tons at a later stage. In addition, investments are also needed to improve the quality of the self-fluxing pellets produced at the Huasco pelletizing plant.

56. In Peru, iron ore output in 1989 was at its lowest level of the past ten years, producing only 3.9 million tons of which 1.8 million tons of pellets. Hierro Peru, where annual production capacity is estimated at 7.3 million tons, could not reach its target owing to problems originating from the precarious political, social and economic situation in the country. Peruvian mineral production in general has been severely jeopardized since 1988. Iron ore, in particular pellets production, dropped considerably due to power supply shortages caused by cuts in power lines by terrorists, strikes caused by labour disputes, and deterioration of infrastructure and industry equipment. Nonetheless, Hierro Peru is concentrating efforts to restore its ore supply capability in 1990, and to be able to normalize its shipments schedule during the second half of the year, since Peru with its two pellet plants in full operation has the capacity to produce 3 million tons of pellets annually.

57. Mexico produced 7.5 million tons of iron ore concentrates, transformed into 8.5 million tons of agglomerated ores for the consumption of the

country's steel mills. The country has a pelletizing capacity of 9.5 million tons and sintering facilities to produce about 1 million tons of sinter a year. The company Minera del Norte intends to expand its facilities for ore concentration, while Sicartsa is planning investments to expand its pelletizing and concentration plants of Michoacán.

58. In Argentina, pellets output in 1989 declined to 700 thousand tons, but plans are being made to increase imports of pellet-feed from Chile, so as to expand production of the Argentinian pelletizing plant to 2 million tons a year, for sales to international market.

59. Colombia's iron ore output has remained at the level of 600 thousand tons annually. Bolivia started producing 15 thousand tons of iron ore concentrates in 1988, and maintained this level in 1989 with the current annual capacity of 500 thousand tons of wet ore. Bolivia is planning to reach 122 thousand tons in 1990. Its total production has been exported to Paraguay and Argentina.

North America

60. Despite the recovery in 1988/89, the North American position as world iron ore producers became weaker over the decade; output in the region was 98 million tons in 1989 compared with 126 million tons in 1980; its share in world production had declined from 14 per cent, the share at the beginning of the decade, to 10 per cent at the end. Following the restructuring programme which resulted in substantial capacity reduction, iron ore production in the United States improved in 1989, almost reaching 58 million tons. The American iron ore industry continued its efforts to improve pellet quality. According to the United States Bureau of Mines, fluxed or partially fluxed pellets accounted for more than one-third of production and were produced by six of the country's nine active taconite plants. In 1989, American iron ore was produced by 21 mines, 16 concentration plants and nine pelletizing plants with mines consisting of 20 open pit and one underground operation.[12/] Ten mines operated by seven companies accounted for nearly 99 per cent of the country's total output. Cleaveland Cliffs remains the largest producing company in the United States, controlling about half of total North American iron ore capacity. Cliff's iron ore shipments from the United States in 1989 exceeded 30 million tons.

60. In Canada iron ore output in 1989 was 40.4 million tons, virtually the same as in 1988, but lower than the 48.7 million tons produced in 1980. Canadian iron ore was produced by six mines and total output represented about 80 per cent of total capacity.[13/] Quebec Cartier Mine (QCM) which is under new ownership (50 per cent DOFASCO, Canada; 25 per cent MITSUI Japan; and 25 per cent CAEMI, Brazil), operated at a higher rate in 1989, producing more than 16 million tons of ore and shipping 6.6 million tons of acid pellets; QCM has plans to expand pellet capacity to 8.4 million tons in the course of 1990. Another major company, Iron Ore Company of Canada (IOC), also increased shipments which exceeded 15 million tons, of which 8 millions of acid pellets and 1.7 million of fluxed pellets. Wabush Mines and Algona Ore Division both operated above their nominal capacity. The Adams and Sherman mines, operated by Dofasco which produced 1 million tons of fluxed pellets each last year, are scheduled to close in 1990 owing to the low quality of the ore. The remaining Canadian mines are expected to run at full capacity throughout 1990 to compensate for this 2 million ton capacity loss.

Oceania

62. Australia's iron ore output in 1989 set a new record of 105.8 million tons, reaffirming its position as the world's fourth iron-ore producing

country and the second largest exporter. Total iron ore capacity in the country, estimated at 121.5 million tons in 1989, was expected to expand by another 2 million tons in 1990. Australia's production target for 1990 was for 111.5 million tons. Iron ore reserves are concentrated at the Pilbara region in western Australia where production is controlled by four major companies. Hamersley Iron, the largest, was running close to capacity and had produced 42.2 million tons in 1989, although shipments amounted to nearly 50 million since it included ore from stocks. For 1990 Hamersley's target was 46 million tons. The Chanar Project, developed by Hamersley (60 per cent) and China Metallurgical Corp (40 per cent) to supply the Chinese market, had started production as scheduled in January 1990 for shipments of 3 million tons in 1990, gradually with additional investments in the order of US$ 120 million over the next eight years production was expected to reach 10 million tons a year. Iron ore output from BHP Mount Newman in 1989 exceeded 27 million tons although restricted by industrial interruptions which affected production of high-quality ores in the second half of the year. Robe River Iron Associates increased shipments in 1989 to about 21.5 million tons and intended to raise production to 24 million tons in 1990, despite the temporary suspension of shipments earlier in the year owing to loading problems. The Goldsworthy extension was concluded; this company has a current annual capacity to produce 6 million tons.

63. A new development regarding the ownership of part of the Australian iron ore industry started to take shape early in 1990, when BHP - Australia became 100 per cent owner of the Goldsworthy Iron Ore Project. Since BHP already holds 85 per cent of Mt Newman, and 100 per cent of Yandicoogina-Marillana which is planned to be developed within the next two years, the idea put forward by BHP was that under a unique capital structure the functional operation of the three mines could be more effective through a mutual utilization of loading and infrastructure facilities. A final decision on this issue will depend on the position of other parties concerned, in particular some major Japanese trading companies with capital participation in major Australian iron ore companies. Further, as the Savage River pellets plant is scheduled to be closed in September 1990, an agreement was reached for the dissolution of the Savage River joint venture involving Australian, Japanese and American private capital.

C. Financing and investments

64. In view of the depletion of some deposits, the restructuring of the iron ore industry and consequent closure of a number of inefficient mines, as well as the 1981-86 depressed market conditions which discouraged investments in new mines, the over-supply situation which had characterized the iron-ore market during the first half of the 1980s had disappeared by the end of the decade.[14/] Strong demand since the second semester of 1987 made temporary shortages of some types of ores inevitable. In addition, occasional disruptions of supply, even of fines and concentrates, due to such eventualities as strikes, technical or transportation problems, etc. have also alerted producers and consumers to the need to review commitments and investments in order to assure long-term supplies.

65. Despite recently renewed interest in certain dormant projects, it should be noted that investment plans do not always materialize. Table 7 below lists a number of new projects and capacity expansion projects. Only those among them which have financial backing will be implemented, however.

Table 7

Investment plans for iron ore, 1990

Region	Number of projects 1990	Investments ($US million) 1990
Africa	3	1260
Asia	1*	128
Western Europe	-	-
North & Central America	3	414
South America & Caribbean	4	391
Oceania	4	695
Total	15	2,888

Source: UNCTAD secretariat. For details see annex 1.
* Relates to several small projects in China.

66. During the 1980s most of the assistance given by international financial institutions to iron ore projects was aimed at assuring the replacement of depleting mines in order to avoid disruption of long-term supply. The great beneficiary was the Carajas Project in Brazil which got financial support from the World Bank as well as from the European Economic Community. Iron Ore projects in Liberia, Mauritania, Sweden and Norway were also assisted by international financing. The World Bank has provided funds for two iron ore projects over the past ten years (table 8). In addition, part of the loan provided for Mexico's steel sector in 1988, to improve local infrastructure, will benefit the transportation of ore from the mines to the steelworks. The World Bank was preparing a loan for Mauritania, for submission to the 1990 World Bank Board summer session. In addition, the European Economic Community under the Lomé Convention[15/] has financed a number of feasibility studies to evaluate the potential for exploitation of new mines in Africa. Table 9 presents a list of iron ore projects financed by the EEC under its two financing facilities in the 1980s.

Table 8

World Bank/IDA lending for iron ore 1980-1990

Country/Project	Amount (US$ million)	Board Date
Liberia - National Iron Ore	20.0	01.07.82
Brazil - Carajas Iron Ore	304.5	08.10.82
Total amount No. of Projects	324.5 (2)	

Source: World Bank, IDA-International Development Association.

Table 9

Iron Ore Projects financed by the European Economic Community, 1980-1990

I. Under article 54.2 CECA

Country	Projects	Date	Type	Amount (millions)	Financing CECA (millions) Decided	Effective
Norway	Sydvaranger	24.07/ 20.10.80	Iron Ore	CRN 117,2	CRN 45	DM 17 (CRN 45)
Brazil	Carajas (CVRD)	31.03./ 12.07.82	Iron Ore	US$ 5.305	US$ 600	DM 725 (US$ 257)
Sweden	Malmberget (LKAB)	04.09./ 20.10.86	Iron Ore	SKR 500	SKR 165	US$ 26 (SKR 165)

II. Under the Lomé Convention

Country	Projects	Type	Amount (thousand Ecu)
Cameroon	Kribi	* Study	400
Gabon	Haut Ivindo	Study	9,500
Guinea	Mont Nimba	* Study	900
Liberia	Bong-Lamco railway link	Study	475
	Bong Mining Company	Investment (Sysmin)	49,300
Madagascar	Soalala	Study	2,400
Mauritania	S.N.I.M.	Investment (Sysmin)	18,000
		* Investment	10,000
		* Study	1,500
Sénégal	MIFERSO	* Study	100

Source: European Economic Commission * European Investment Bank

IV. TRADE IN IRON ORE

67. In 1990, world trade in iron ore set a new record of 414 million tons, accounting for 42 per cent of global iron ore output. This level, the highest ever, was more than 2 per cent above the 402 million tons traded in 1988. The value of world exports of iron ore exceeded US$ 8.2 billion in 1989 compared with US$ 7.5 billion in 1988, upsetting a tradition that growth in export volumes is often much higher than increases in exports earnings.

68. During the 1980s international trade in iron ore grew on average by 0.8 per cent a year, with shifts in export shares of economic groups. In 1980 exports from developing countries accounted for 41 per cent of world iron ore trade while at present it represents 48 per cent. In contrast, developed market-economy countries which at the beginning of the last decade had a 46 per cent market share at the end had 42 per cent. The share of the USSR had remained relatively constant over the decade accounting for about 10 to 12 per cent of world iron ore exports.

69. No important shifts have, however, re-oriented the major iron ore trade flows. During the decade, Brazil and Australia were the leading exporting countries and reinforced their position. Together they had 41 per cent of total exports in 1980, a share which increased to 51 per cent in 1989 (table 10). On the importing side, the EEC and Japan remained the key markets; their share in world imports declined slightly from 68 to 65 per cent during the 1980 to 1989 period.

70. Despite the remarkable expansion of iron ore trade in 1989, not all major exporters benefitted from this growth as shown in table 10.

Table 10

Major iron ore exporting countries, 1980-1989
(million tons)

Country	1980	1983	1986	1988	1989	Share in world exports 1989
1. Brazil	78.8	70.0	92.3	105.3	111.6	27.1
2. Australia	79.7	74.0	79.7	95.0	99.3	24.1
3. USSR	46.9	42.8	46.2	43.1	39.9	9.7
4. India	24.8	20.7	28.1	32.3	32.0	7.7
5. Canada	39.0	24.8	31.0	30.5	30.2	7.3
6. Sweden	21.0	14.2	17.1	17.5	17.5	4.2
7. South Africa	13.1	7.8	8.8	11.1	14.5	3.5
8. Venezuela	11.7	6.2	10.0	12.5	14.4	3.5
9. Liberia	17.2	15.7	13.9	13.8	12.7	3.0
10. Mauritania	8.7	7.4	8.9	10.0	11.1	2.7

Source: UNCTAD secretariat -"Iron Ore Statistics, 1980-1989.

71. Japan remained the largest iron ore importing country in 1989 as it did throughout the decade. Reflecting growth in steel production, Japan's iron ore imports increased for the third consecutive year, and accounted for about

30 per cent of world total imports. Imports almost reached 128 million tons in 1989, more than 3 per cent higher than in 1988. The three major suppliers to the Japanese market continue to be Australia, Brazil and India (table 11).

Table 11

Iron ore imports into Japan - 1989
(million tons, natural weight)

Origin	Non-Agglomerated	Agglomerated	Import Share (%)
Australia	54,594	1,681	44.1
Brazil	25,838	3,682	23.1
India	21,062	158	16.6
South Africa	4,812	40	3.8
Chile	2,864	1,788	3.6
Philippines	-	4,507	3.5
Canada	2,147	-	1.7
New Zealand	1,387	-	1.1
Peru	586	375	0.8
Sweden	688	81	0.6
Venezuela	541	-	0.4
Mauritania	437	-	0.3
Liberia	238	-	0.2
Others	186	16	0.2
Total	115,380	12,329	100

Source: UNCTAD secretariat - Iron Ore Statistics, 1980-1989

72. In the 1980s the EEC remained the largest iron-ore importing region. Last year, total imports by EEC member countries reached 141 million tons, about 6 per cent higher than in 1988. Iron ore imports increased in 8 out of the 12 EEC countries. Major importers are the Federal Republic of Germany, Belgium/Luxembourg, France, the United Kingdom and Italy and major suppliers to the EEC are Brazil, Australia and Canada (table 12).

73. Eastern Europe is another major importing region for iron ore. Already in 1980 it accounted for 15 per cent of world total imports and as demand remained relatively stable in the region, in 1989 those countries imported 46 million tons, equivalent to 11 per cent of global imports. The USSR is the major supplier, but imports from Brazil, India and Venezuela are increasing (table 13).

74. Since about 90 per cent of world trade in iron ore is seaborne, total seaborne trade in iron ore consequently also set a record in 1989, reaching 365 million tons. Developments by region were different: Shipments from Brazil and Australia were at an all-time high in 1989. The tonnage shipped by South Africa was although higher than in recent years. Iron ore shipments from Scandinavia improved last year but were lower than a decade ago, while

Table 12

EEC's iron ore imports by origin/destination - 1989
(thousand tons, natural weight)

Destin. / Origin	FRG	F	I	NL	BL	UK	DK	S	P
Non-agglomerated ores									
Total	31045	19954	14328	8151	19393	15421	6	4472	390
of which:									
EC	500E	319	279	769	3385	632	-	0	33
Norway	61	339	-	1212	95	115	-	-	-
Sweden	1057	625	-	302	2874	326	6	-	-
Mauritania	1	2853	2418	10	2555	679	-	869	216
Liberia	3200	999	1743	10	994	-	-	838	-
Canada	4250	2294	571	812	761	2316	-	207	140
Venezuela	722	1069	1286	461	1527	1166	-	605	-
Brazil	13704	5589	2868	2379	5514	3165	-	1083	-
Australia	6742	4039	1950	1366	1416	4708	-	870	-
Agglomerated ores									
Total	16125	1	3873	2	394	3759	0	2463	299
of which:									
EC	-	-	-	2	9	-	-	-	-
Norway	529	-	-	-	277	765	-	-	-
Sweden	3854	-	-	-	-	21	-	-	-
Mauritania	-	-	114	-	-	-	-	-	-
Liberia	2020	-	861	-	-	-	-	-	-
Canada	1851	-	530	-	-	2836	-	541	299
Venezuela	-	-	-	-	-	-	-	-	-
Brazil	6297	1	2368	-	106	-	-	1923	-
Australia	-	-	-	-	-	137	-	-	-
Total (including others)	47170	19955	18201	8153	19787	19180	6	6935	689

Source: - EUROSTAT
1) Without Greece (2) Ireland no imports (3) Netherlands, National Statistics.

Table 13

Eastern Europe iron ore imports by origin/destination, 1989
(million tons, natural weight)

Destin. / Origin	Poland	Romania	Czech and Slovak F.R.	German Dem. Rep.	Hungary	Bulgaria
USSR	11,873	6,544E	8,127	2,000E	2,589	1,920
Brazil	1,063	1,550	1,086	688	-	-
Norway	28	-	91	-	-	-
Sweden	-	-	292	520	-	-
India	-	2,760	184	759	610	-
Venezuela	477	1,010	278	-	-	-
Others	-	1,164	-	30	64	-
Total	13,441	13,626	9,765	4,000	3,263	1,920

Source: UNCTAD secretariat - Iron Ore Statistics 1980-1989.

shipments from India in 1989 remained at the same level as in 1988 and 1986, which was the record levels of the country so far reached. In contrast, iron ore shipments from Africa declined to their lowest level, the same as during the years of 1982 and 1986, due to problems in Liberia. It is noteworthy that iron ore shipments from "other origins" which includes North America, Latin American countries excluding Brazil, and European countries other than Scandinavia declined by 5 million tons in 1989 compared to 1988.

75. Regarding destinations, a decline of shipments to the United States, and to "other destinations" occurred during the past two years. In absolute terms, shipments were higher by 23 million tons than at the beginning of the 1980s, mainly due to the continuous growth of iron ore imports into Asia, in particular the Republic of Korea, which in 1989 was the third major iron ore importing country. Table 14 shows the trends of world seaborne iron ore trade in the 1980s.

Table 14

World seaborne iron ore trade - 1980-1989
(million tons)

Years:	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989a/
Origin										
Scandinavia	24	18	15	17	21	21	21	19	20	21
West Africa	28	27	23	24	27	25	23	25	27	23
South Africa	14	13	12	9	11	10	8	9	12	14
Brazil	78	79	74	69	88	92	92	101	106	114
India	26	24	24	22	24	29	32	30	32	32
Australia	84	75	72	75	85	88	80	87	100	108
Other origins	69	67	54	45	47	47	54	50	58	53
WORLD TOTAL	323	303	274	261	303	312	310	321	355	365
Destinations										
West Europe	115	112	97	90	104	119	114	125	144	147
East Europe	22	18	11	14	20	16	14	15	14	18
USA	17	19	9	7	12	7	13	13	16	14
Japan	134	123	122	109	125	125	115	112	123	128
Other destinations	35	31	35	41	42	45	54	56	58	58
WORLD TOTAL	323	303	274	261	303	312	310	321	355	365

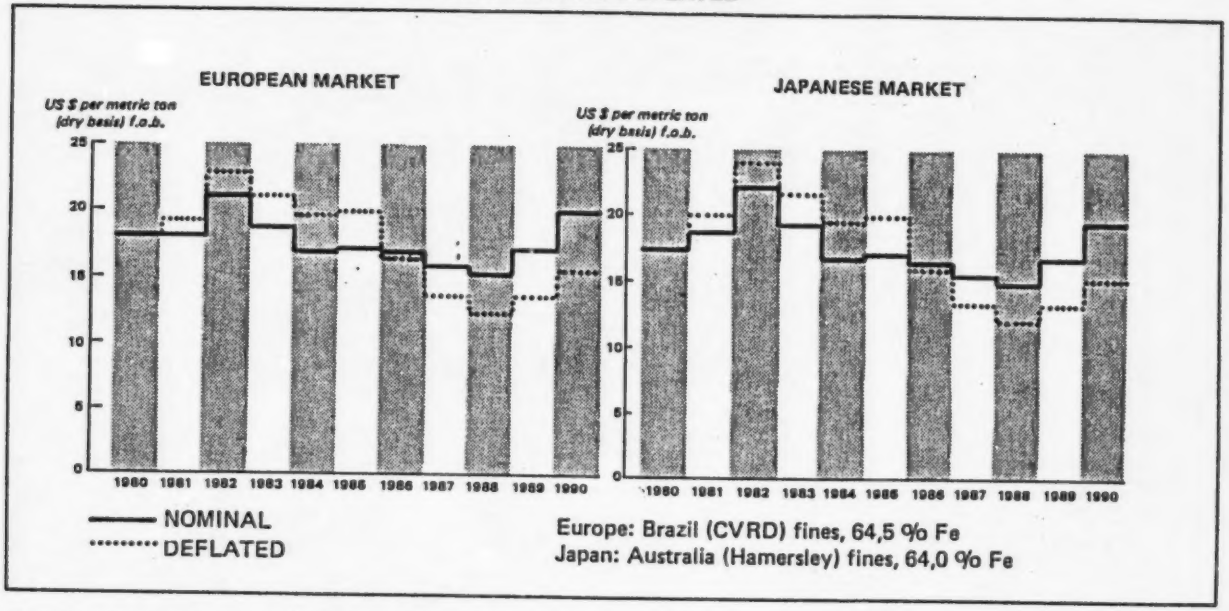
Source: Drewry Shipping Consultants Ltd.
(a) preliminary

V. IRON ORE PRICES

76. After a long period of depressed prices from 1983 to 1988, in 1989 iron ore prices increased by 13 per cent for fines, and 17 per cent for lumps and pellets. This price rise equally applied to deliveries to Japan as well as to Europe, reflected a better equilibrium between supply and demand. Variations in this range were mainly in the form of premiums or demerits for certain quality iron ores. Nevertheless, in view of the boyant level of crude steel production which provoked occasional shortages of some types of ore, such as pellet-feeds and lumps, iron ore producers considered this price rise insufficient to compensate for the accumulated losses of previous years and to restore the level of investments necessary to keep the iron ore production level in pace with that of the steel industry in 1989.16/

Chart 3

IRON ORE PRICES 1980-1990
NOMINAL AND DEFLATED[a]



Notes: [a] Nominal prices deflated by the United Nations index of unit value of exported manufactured goods (1980 = 100)
[b] For the Japanese market, prices are effective from April/March (fiscal year)
[c] For 1990 deflated index is estimated based on the first quarter of the year
[d] Price in Japan converted from DLT (dry long ton) to DMT (dry metric ton). Convertion factor = 1.016047

Source: UNCTAD secretariat

77. In early 1990, market forces strengthened the suppliers' side, resulting in further price increases. However, the benchmark of a 16 per cent rise agreed upon for fines, lumps and iron sands, and 9 per cent for pellets, actually represented half of the 30 per cent increase initially sought by Brazil's CVRD which re-assumed its leadership position in annual price negotiations. In addition, it should be pointed out that behind this apparent orderly and smooth round of negotiations in which by mid-January 1990 reference prices had been uniformly set, firstly in Europe and immediately thereafter in Japan, some price agreements were only concluded in May due to divergence of perceptions about the level and the evolution of freight rates. In effect, the iron ore market in 1990 experienced a situation in which there was some reluctance to accept reference prices unanimously.

78. It is also noteworthy that although the price difference between fines and pellets for the first time exceeded 20 cents per unit of Fe in 1989 and again in 1990, the rate of increase for pellets declined from 17 to 9 per cent over the 1989/90 period, due to a gradual slackening of demand which started at the beginning of the year. As regards lumps, while the same price percentage was set for lumps and fines, the premium put on lumps as opposed to fines was higher in 1990. Another feature resulting from the current tightness of the market was that spot sales, normally traded in small quantities at lower prices, were becoming scarce for lack of readily available supplies. In the United States, however, the spot market remained quite active with spot prices for pellets at around 36 $US per long ton in 1989 at the Lower Lakes ports although signs of a fall in the first half of 1990 had been noted. Since 1987, domestically produced pellets had become very competitive in the United States, because both posted and spot prices were lower than world prices for deliveries to the United States.

VI. TRANSPORT COSTS AND FREIGHT RATES

79. In the 1980s transport costs and freight rates remained key factors influencing world prices and trade of iron ore. As a low-value commodity, shipping and handling costs still account for around 20 to 25 per cent of the iron ore C&F price (about US$ 26.6/ton C&F Rotterdan); as a high-volume commodity (around 365 million tons) iron ore accounts for one third of the volume of dry cargo trade, being the most important dry commodity in world seaborne trade.

80. In the 1980s the world shipping industry was compelled to respond to the expansion and new challenges of international trade, and the iron ore industry gave proof of great dynamism. Substantial investments to improve ports infrastructure, both for ship loading and discharging were and continue to be made in iron ore exporting and importing countries. Innovative solutions have been found to overcome difficult situations, an example being the utilization of off-shore transfer systems and even the construction of floating loading terminal stations. Economies of scale have been applied widely so as to reduce transport costs per tonne. This not only includes the utilization of large and ultra-large bulk carriers (ULBC) with capacities from 150 to over 300 thousand DWT, but also the possibility to combine dry (iron ore/coal) or wet (iron ore/oil) shipments. By the end of the 1980s about 70 per cent of the world seaborne iron ore trade was being carried by ships holding over 100,000 DWT as against only 40 per cent at the end of the 1970s. Furthermore, long transport distances of over 15,000 sea miles, such as Australia/Europe and Brazil/Japan, became routine during the past ten years.

81. Regarding the evolution of freight rates, while the 1982/86 period was characterized by a downturn, at the beginning and at the end of the decade freight rates were at high levels, as shown in table 14. In 1989, the

strongest freight year since 1980, the annual average freight rates for iron ore were bolstered by the sustained upturn in steel production throughout the year, which stimulated related iron ore and coking coal bulk transports, eliminating the surplus of the dry bulk market and strengthening the level of rates. As a result, a number of steel mills which in the past preferred flexible shipping schedules based on the single-voyage spot market, more recently have been opting for long-term freight arrangements. Although, these arrangements are settled for several years, tonnages and rates are re-negotiated annually.

Table 15

Freight rates for iron ore in the single-voyage charter market, 1980-1989
(US$ per DWTC)

TRADE ROUTES		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989a/
E. Canada-Europe a/ (110-130,000 FIO)	H	9.3	7.2	4.3	3.5	6.1	5.0	3.8	5.3	6.7	8.8
	L	7.2	3.3	2.9	3.0	3.6	2.4	2.1	3.4	5.0	5.7
	A	8.0	4.7	3.4	3.3	4.6	3.6	2.9	4.1	5.6	7.1
Liberia-Europe a/ (60-80,000 FIO)	H	10.1	7.9	5.7	4.7	6.0	5.2	4.4	6.8	7.8	8.7
	L	7.1	4.9	3.3	3.6	4.2	3.2	2.7	3.9	5.0	5.8
	A	8.0	5.9	5.1	4.2	4.9	4.2	3.3	4.9	6.3	6.9
Brazil-Europe a/ (80-10,000 FIO) (120-160,000 FIO) c/	H	11.4	10.3	6.7	5.9	8.8	6.8	5.6	6.8	7.5	8.8
	L	8.3	6.7	4.1	4.5	5.3	4.0	3.8	3.1	5.8	6.8
	A	9.6	8.4	5.4	5.1	6.5	5.7	4.5	4.6	6.8	7.5
Brazil-Japan (90-110,000 FIO) (125-155,000 FIO) c/	H	13.5	12.3	9.4	8.9	10.6	9.0	7.3	9.2	12.3	15.5
	L	10.0	8.9	6.7	7.5	8.3	7.5	4.6	5.0	8.8	12.2
	A	11.7	10.3	8.0	8.2	9.1	8.0	5.8	6.8	10.4	13.7
W. Australia b/- Europe a/ (120-140,000 FIO)	H	14.1	12.9	7.8	10.8	9.6	9.0	7.3	8.3	9.4	11.5
	L	7.7	7.8	5.1	6.0	6.9	5.7	5.1	5.8	6.9	8.7
	A	10.9	9.8	6.4	7.6	8.8	7.3	6.0	7.3	8.5	9.6

H = Highest month L = Lowest month A = Average of 12 months
FIO = free in and out a/ Estimate DWCT = Dead weight cargo tonne

Source: Drewry Shipping Consultants Ltd.
a/ Discharge Antwerp-Rotterdam-Amsterdam (ARA) range of ports
b/ Load Cape Lambert, Dampier or Port Hedland
c/ 1987, 1988 and 1989

82. Indeed, a controversial issue of the 1990 iron ore annual negotiations has been the question of how to predict the likely level of freight rates for a whole year. The fact that an "estimated freight rate" should be agreed upon once a year for the entire delivery period remains a complex issue in the marketing of iron ore.[17] In particular, because in a market where prices are fixed on an FOB basis, but competitiveness is measured by the C&F price, developments which can push freight rates to levels higher or lower than foreseen undoubtedly affect the margin of profit of the iron ore industry.

83. In a market so volatile as that of dry bulk cargos, which is heavily influenced by the grain trade and effected by seasonal movements, and where in addition rates for the same commodity can vary depending on the kind of shipping arrangements (annual contracts, pluri-annual COAs, single-voyage charter, time-charters etc.), the question arises of whether it would be in the interest of iron ore traders to become more involved in the freight futures market, even if at present the utility of such as step is less relevant for ferrous-commodities seaborne trade.[18/] The freight futures market could possibly be used as a hedging instrument against adverse fluctuations in freight rates, and could also helping to anticipating the evolution of rates.

VIII. OUTLOOK FOR IRON ORE

84. The year 1990 started with the same euphoria as 1989 ended. Demand for iron ore was extremely high; mines were running at full capacity; stocks were at their lowest level and annual production targets set for 1990 were even higher than for 1989, although the world economy has been easing slightly due to lower rates of GDP growth in developed market-economy countries (2.9 per cent estimated for 1990, 3.6 per cent in 1989, and 4.0 per cent in 1988).

85. During the first half of 1990, in general, mines met their scheduled output. Occasional interruptions of shipments such as those experienced in Spain and Liberia contributed to keeping demand at a high level. In Australia, during the first quarter of 1990, iron ore output was 17 per cent higher than the year before, and Brazilian iron ore exports from January-March 1990 reached 28.5 million tons compared to 26.9 million tons for the same period in 1989. Crude-steel output in the major 40 member countries of the IISI (International Iron and Steel Institute) was, however, 2.7 per cent lower over the period January-June 1990 compared with the same period in 1989. However, considerable differences in steel market developments from region to region were noted. In North America as well as in Latin America, a marked downturn continues. In the EEC a decline was taking place but for the year as a whole the steel market is expected to remain favourable. In Japan, the steel industry remained dynamic; the level of steel output in the first six months of 1990 was almost 1 per cent higher than that of 1989, a situation expected to be maintained during the second half of 1990, reflecting the high level of investments and the booming construction sector strengthened by strong private housing demand. This situation in Japan is noteworthy since it contrasts sharply with the 4 per cent lower level of iron ore imports during the first five months of 1990 (53.3 million tons in 1989 against 51.2 million tons in 1990), which suggests that considerable stock has been carried over from the previous fiscal year. In Eastern Europe, after a decline of 2 per cent in crude steel production in 1989, the downward trend is continuing in 1990, since the level of steel consumption is unlikely to improve in the short term.

86. As mentioned above, there are indications that the world steel industry will remain strong in 1990, although slightly less buoyant than in 1989. The outlook for the iron ore market remains favourable throughout 1990, even if a slight slowing down in overall demand cannot be excluded in the latter part of the year. No significant change in the level of demand for fines and lumps is anticipated. The market for pellets, however, which had slackened in the first half of the 1990, due to recent higher production rates, may well become tighter again during the second half of the year, as a result of the suspension of production and shipments from Bong Mining in Liberia at the beginning of June, and the operational stoppage in one of the Brazilian plants, which also caused a temporary slow down in pellets' availability.

87. For 1991, optimism persists. Iron ore prices are likely to rise further, as favourable market conditions continue to strengthen the sellers' position. It should be noted that the sustained level of world crude steel production is not the only factor responsible for the current iron-ore market equilibrium. Recent short-term developments which provoked temporary interruptions of contracted tonnages also revealed the vulnerability of supplies. These developments also demonstrated the need to restore iron ore prices to levels attractive to re-investments to assure long-term supplies.

88. As for the future, during the 1990s changes in the traditional pattern of iron ore trade are likely. Some trends may already be identified:

(i) Following the important political and economical changes which took place in Eastern Europe in 1989, and their impact on the volume and pattern of the foreign trade activities in the region, the current structure of intra-regional iron ore trade might be gradually re-shaped. As already stated in UNCTAD's 1989 report,[19/] "imports of iron ore in Eastern Europe from non-CMEA countries are already increasing, although the regional level of iron ore trade has remained stable in recent years - A radical change of this picture is not foreseen in the near future, since the main emphasis of the local steel industry is on modernization rather than expansion." This statement remains valid. Indeed, this process is likely to be accelerated by the more recent developments. Firstly, because with the USSR's new economic-policy orientation, efforts are being concentrated on expansion and globalization of exports, in general, including iron ore, on the basis that international trade settlements will be made in hard currency. Likewise, Eastern European countries also will have to pay for imports in convertible currency. As a consequence, they will be no longer compelled to purchase Soviet iron ore, unless its quality and price is competitive, although some long-term counter-trade arrangements, contracted in the past, may probably be honoured. Against this background, imports into Eastern Europe of non-Soviet ores are likely to increase, as well as the USSR's iron ore exports, if competitive, to the international market.

(ii) In China, although the situation is more difficult to predict, steel production will undoubtedly continue to grow. However, despite large iron-ore reserves, the low-quality and difficult access of the deposits would point to China as the country with a great potential to increase iron ore imports in the near future. Nevertheless, for politico-economic reasons, the present policy of the government towards the expansion of national iron ore production, aimed at reducing the growing import dependence, might reduce the prospect of higher iron ore imports into China in the medium term.

(iii) The expansion of crude steel production in developing countries, which usually goes in tandem with industrial development, cannot be delayed for too long. Import requirements by certain newly industrializing countries are likely to continue expanding in the next few years.

(iv) The rise of steel production in regions with abundant resources of iron ore, such as Latin America and India, is likely to have a bearing on the region's export potential, since domestic iron ore consumption may increase considerably in the medium term.

Annex I

Iron ore mining projects: new mines and capacity expansions - 1990

COMPANY	LOCATION	PLANNED CAPACITY	INVESTMENT ($ million)	START	NOTES
AFRICA					
Mifergui-NINCO/ACM	Nimba Mts., Guinea	6-9 MM mt/yr ore	200	1993	-OR: 1,500MM at 66.7% Fe-fines
SNIM	M'haoudat, Mauritania	6 MM mt/yr ore	160	1993	-OR: 80 MM at 64% Fe-lumps/fines
MIFERSO	Faleme, Senegal	6-12 MM mt/yr ore	900	1990s	-OR: 610MM 62% Fe.lumps/fines. Includes a railroad and port facilities
ASIA					
Government	Several locations China	-	128	1995	- 13 Projects: 8 new mines and 5 capacity expansions
NORTH & CENTRAL AMERICA					
Sicartsa	Lazaro, Mexico	3MM mt/yr pellets	104	1992	- Expansion programme
	Lazaro, Mexico	3MM mt/yr conc	300	1990s	- " "
Minera del Norte	Sierra Mojada, Mexico	0.5 MM mt/yr conc	10	1993	" "
SOUTH AMERICA					
CVG Ferrominera	Porto Ordaz, Venezuela	10MM mt/yr ore	33	1991	- Expanding and modernizing processing facilities to reach 25 MM.
		3MM mt/pellets	250	1993	- To supply pellets for DRI local plants.
MBR	Minas Gerais, Brazil	2.5MM mt/yr ore	38	1995	- New sinter-feed capacity
Samarco	Minas Gerais, Brazil	12MM mt/yr ore	70	1994	- Replacement to continue operations of the existing pellets plants.
OCEANIA					
Mt. Newman/Hancock	McCameys, Australia	5-8MM mt/yr ore	-	1990	- Scree ore being tested; annual rate 2.6 MM/year
BHP	Yandicoogina, Australia	5MM mt/yr ore	100	1992	- OR: 200MM at 58 Fe.fines
CRA/Hanwright	Marandoo, Australia	5MM mt/yr ore	475	1990s	Under consideration-OR:313MM at 62% Fe
Hamersley Iron/ Chinese Metallurgical	Channar, Australia	3-10MM mt/yr ore	120	1990/ 1997	- 3MM mt output for China in 1990 To reach 10MM mt/yr by 1997

Source: Based on annual surveys by Engineering and Mining Journal and Mining Magazine. Complemented and revised by the UNCTAD secretariat based on the work of the Intergovernmental Group of Experts on Iron Ore.

Notes: The information provided is not exhaustive, additional information and revisions are welcomed.
OR = ore reserves MM = million M = thousand mt = metric ton $ = US dollar

Annex II

Iron ore mining projects: closures and capacity reduction - 1990

COMPANY	LOCATION	REDUCTION OF CAPACITY	EFFECTIVE OR PLANNED DATE	TEMPORARY (T) PERMANENT (P)	NOTES
AFRICA					
LAMCO	Yekepa, Liberia	6.5 MM mt of ore (6.2 MM fines 0.3 MM lumps)	Sept.1989	P	Final 3 MM mt may be mined by ACM (African Mining Consortium) NINCO in 1990
NORTH & CENTRAL AMERICA					
Dofasco	Adams, Sherman, Canada	2 MM mt/y pellets	1990	P	-
La Perlaminas	Camargo, Mexico	1.5 MM mt/y conc.	1993	P	Depletion
EUROPE					
SSAB	Dannemora, Sweden	0.6 M mt/y	Dec. 1991	P	-
OCEANIA					
Savage River	Tasmania, Australia	2.5 MM mt pellets	Sep. 1990	P	-

Source: UNCTAD secretariat based on the work of the Intergovernmental Group of Experts on Iron Ore.

Notes: The information provided is not exhaustive, additional information and revisions are welcomed.
OR = ore reserves MM = million M = thousand mt = metric ton

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- Arab Steel

Notes

1/ Recently the UNCTAD secretariat started to compile iron ore production, consumption and trade statistics by products, because there are no statistics available showing the world evolution of iron-ore demand by product. Broad indications can be drawn by comparing the production of sinter and pellets with the global output of pig iron and sponge iron. However, it should be noted that, due to technological advances in iron and steelmaking, allowing for different combinations of iron charge in blast furnaces as well as changing requirements of new smelting reduction processes, etc., it has become more difficult to quantify the composition of iron-ore demand from general assumptions.

2/ See: OECD Press Release A(90)7, Steel Committee, 30 January 1990.

3/ See: Metal Bulletin, January 15, 1990, and the American Metal Market, 9 March 1990

4/ See: Tex Report, 16 February 1990.

5/ Details of crude steel production by process is shown in "World steel in figures 1990" by the International Iron & Steel Institute, Brussels, 1990.

6/ See: "Statistical Yearbook" by the International Iron & Steel Institute, Brussels, 1990.

7/ Over the past three years, in an attempt to improve market transparency, a growing number of countries have been providing statistics on iron ore stocks to the UNCTAD secretariat. Three tables in the document UNCTAD Iron Ore Statistics, 1980-1989 show figures for: total stocks by producers and consumers; reported stocks by products for producers and for consumers.

8/ See: UNCTAD Iron Ore Statistics: 1980-1989, Table 4: Pellets Production; Table 5: Sinter Production.

9/ idem

10/ Reference is made to articles from:
- Metal Bulletin - 8 March 1990
- Mining Magazine - May 1990
- American Metal Market - 19 March 1990

11/ Reference is made to "Chapter IX - Raw Materials" of the recent study published by the European Economic Commission, General Objectives - Steel 1995, Brussels, 1990.

12/ See: Skillings Mining Review - 29 January and 24 March 1990; Mineral Industry Survey, US Bureau of Mines.

13/ See: Canadian Mining Journal, March 1990 "Iron Ore" by B.W. Boyd, and Skillings Mining Review - 10 March 1990.

14/ See: UNCTAD's report "Review of the current market situation and outlook for iron ore" - 1987 (TD/B/IPC/IRON ORE/AC.1/18) paragraph 2. "Iron ore projects are no longer an attractive investment: declining prices have been reducing net operating results of iron ore companies in real terms, resulting in uncertainty about the financing of new projects in the near future; this disinvestment attitude is in turn provoking a downward re-evaluation of capital investment plans. This situation may contribute to improve market equilibrium in the short-term; if it last too long, however, it could eventually cause a supply-deficit".

15/ The Lomé Convention is a treaty between the European Economic Community (EEC) and the African, Caribbean and Pacific (ACP) countries (76 States), which through the SYSNIM, has a special financing facility for mineral products. Its prime objective is to assist ACP countries to cope with a decline in their capacity to export mineral products to the EEC. In February 1990, Lomé V came into operation with revised and more appropriate elements.

16/ Reference is made to paragraphs 3 and 69 of the UNCTAD's report "Review of the current market situation and outlook for iron ore - 1989 (TD/B/IPC/IRON ORE/AC.1/14).

17/ The issue of "estimate freight rates" had been already discussed in previous UNCTAD's reports, in particular in paragraphs 71 to 73 of the "Review of the current market situation and outlook for iron ore - 1989 (TD/B/IPC/IRON ORE/AC.1/14).

18/ Paragraph 78 of UNCTAD's report "Review of the current market situation and outlook for iron ore - 1978 (TD/B/IPC/IRON ORE/AC.1/8) says: "In 1985, the Baltic International Freight Futures Exchange (BIFEX) started operating in London, providing hedging against adverse fluctuations in freight rates to all those involved in the seaborne transport of dry cargos and facilitating shipment arrangements generally. The BIFEX freight index is based on a basket of 13 shipping routes with different weights, in which grains accounts for 65 per cent of the routes, while iron ore and some other commodities less reliant on spot figures account for only 5 per cent of total weight. This partly explains why this Futures Exchange Market has not been attracting as many iron ore traders as expected."

19/ See paragraph 63 of UNCTAD's report (TD/B/IPC/IRON ORE/AC.1/14) - Review of the current market situation and outlook for iron ore - 1989.